

and Colours. For as the Light which comes from the Point Q goes to the Point *q*, so the Light which comes from other Points P and R of the Object, will go to so many other correspondent Points *p* and *r* (as is manifest by the sixth Axiom;) so that every Point of the Object shall illuminate a correspondent Point of the Picture, and thereby make a Picture like the Object in Shape and Colour, this only excepted that the Picture shall be inverted. And this is the reason of that Vulgar Experiment of casting the Species of Objects from abroad upon a Wall or Sheet of white Paper in a dark Room.

Fig. 8.

In like manner when a Man views any Object P Q R, the Light which comes from the several Points of the Object is so refracted by the transparent skins and humours of the Eye, (that is by the outward coat EFG called the *Tunica Cornea*, and by the crystalline humour AB which is beyond the Pupil *m k*) as to converge and meet again at so many Points in the bottom of the Eye, and there to paint the Picture of the Object upon that skin (called the *Tunica Retina*) with which the bottom of the Eye is covered. For Anatomists when they have taken off from the bottom of the Eye that outward and most thick Coat called the *Dura Mater*, can then see through the thinner Coats the Pictures of Objects lively painted thereon. And these Pictures propagated by Motion along the Fibres of the Optick Nerves into the Brain, are the cause of Vision. For accordingly as these Pictures are perfect or imperfect, the Object is seen perfectly or imperfectly. If the Eye be tinged with any colour (as in the Disease of the *Jaundise*) so as to tinge the Pictures in the bottom of the Eye with that Colour, then all Objects appear tinged with the same Colour. If the humours of the Eye by old Age decay, so as by shrinking to make the *Cornea* and Coat of the Crystalline

*stalline humour* grow flatter than before, the Light will not be refracted enough, and for want of a sufficient Refraction will not converge to the bottom of the Eye but to some place beyond it, and by consequence paint in the bottom of the Eye a confused Picture, and according to the indistinctness of this Picture the Object will appear confused. This is the reason of the decay of Sight in old Men, and shews why their Sight is mended by Spectacles. For those Convex-glasses supply the defect of plumpness in the Eye, and by encreasing the Refraction make the Rays converge sooner so as to convene distinctly at the bottom of the Eye if the Glass have a due degree of convexity. And the contrary happens in short-sighted Men whose Eyes are too plump. For the Refraction being now too great, the Rays converge and convene in the Eyes before they come at the bottom; and therefore the Picture made in the bottom and the Vision caused thereby will not be distinct, unless the Object be brought so near the Eye as that the place where the converging Rays convene may be removed to the bottom, or that the plumpness of the Eye be taken off and the Refractions diminished by a Concave-glass of a due degree of Concavity, or lastly that by Age the Eye grow flatter till it come to a due Figure: For short-sighted Men see remote Objects best in Old Age, and therefore they are accounted to have the most lasting Eyes.

## A X. VIII.

*An Object seen by Reflexion or Refraction, appears in that place from whence the Rays after their last Reflexion or Refraction diverge in falling on the Spectator's Eye.*

If the Object A be seen by Reflexion of a Looking-glass *m n*, it shall appear, not in it's proper place A, but  
Fig. 9.  
B 2 behind